Questioned Documents Unit (QDU)
Procedures for Conducting Stamped Impression/Dry Seal Examinations

1 Scope

These procedures will be used by a forensic document examiner to conduct examinations of impressions from stamps, dry seals, and other mechanical devices. Stamps and dry seals may be produced from an array of materials to include rubber, wood, plastic, photo polymers, metals, and wax.

2 Equipment/Materials/Reagents

- Fostec 150 watt tungsten halogen light, or comparable equipment
- Laboratory Supplies Co., Inc. 30 watt transmitted light box, or comparable equipment
- Hand magnifier (minimum magnification, 4X)
- Leica stereomicroscope (minimum magnification, 6.3X), or comparable equipment
- Keyence VHX-2000E Digital Microscope, or comparable equipment
- Foster and Freeman Video Spectral Comparator (VSC), or comparable equipment
- ChemImage Hyperspectral Imager (HSI) Examiner 200 QD, or comparable equipment

3 Standards and Controls

Not Applicable.

4 Sampling

Not Applicable.

5 Procedures

5.1 Visually examine the questioned and/or known stamped impression(s) using lighting and magnification sufficient to allow fine detail to be distinguished.

5.1.1 Characteristics of a stamped impression include:

- Even ink coverage.
- Ring of darker ink outlining the individual letter(s) (i.e., the "squeegee effect"). This is a result of the relief of the printing area squeezing the ink out to the edge of the ink line. It may be difficult to observe if the entire character is heavily inked.
- Absence of any indentation in the line of ink.
- Rounded beginning and ending of letters.
- Ink filling in sharp angles and intersection points of two lines.
- Uneven outline of the letter may be observed.
- Some patchy areas within the inked impression may be observed.
- Some bleeding of ink through the paper may be observed.

5.1.2 Characteristics of a dry seal impression include:

- Embossing of the paper.
- The impression may not be uniform. This depends on the mounting of the plates in the press, the pressure exerted, or the type of document being embossed.
- Pressure variation may be observed. This may be due to variation in the depth of the letters on the seal itself, warping, unusual wear or misuse, or by the pressure exerted during the embossing process.

5.2 Note, at a minimum, the class characteristics of the impression(s), which include:

- Design
- Format
- Size
- Wording
- Alignment may be a class characteristic depending on the manufacturing process of the stamp(s) or seal(s)

5.2.1 If the comparison of the impressions (questioned to questioned or questioned to known) reveals inconsistencies in class characteristics, this indicates exclusion. Discontinue this procedure and report accordingly.

5.2.2 Examine the impressions(s) macroscopically and microscopically, using direct and oblique lighting, to determine whether any non-print areas, extraneous markings, or alignment problems are present. These are usually considered defects and may be identifying characteristics. Note, at a minimum, the size, shape, and location of the defects.

5.2.2.1 If the impression is from a dry seal, ensure that the front and back of the impression are examined.

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5.3 If a known stamp or seal is received, note, at a minimum, the class characteristics of the known stamp(s) or seal(s), which include:

- Design
- Format
  Size
- Wording
- Alignment may be a class characteristic depending on the manufacturing process of the stamp(s) or seal(s).

5.3.1 If the known stamp(s) or seal(s) is not consistent in class characteristics with the questioned impression(s), this indicates exclusion. Discontinue this procedure and report accordingly.

5.3.2 If the known stamp(s) or seal(s) is consistent in class characteristics with the questioned impression(s), examine the stamp(s) or seal(s) visually and note, at a minimum, its condition (e.g., clean, dirty, worn, damaged).

5.3.3 Examine the known stamp(s) or seal(s) macroscopically and microscopically, using direct and oblique lighting, to determine whether any defects are present. These defects may be identifying characteristics. Note, at a minimum, the size, shape, and location of the defects.

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5.3.3.1 Photograph and/or otherwise record the condition, to include any transitory defects observed, of the submitted known stamp(s) or seal(s). The Keyence Digital Microscope (for performance and verification frequency, refer to the Keyence Performance logbook nearest the instrument) may prove useful for these purposes.

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5.3.4 Make known impressions with the stamp(s) or dry seal(s), as received, using materials similar to the questioned items, if possible. Known impressions should be made using varying pressures and/or rolling techniques.

5.3.4.1 After impressions have been made with the stamp(s) or dry seal(s), Redacted Redacted clean the stamp(s) or seal(s) and make an additional set of known impressions.

5.4 Conduct a side-by-side comparison of the questioned and/or known impressions or the impression(s) to the known stamp(s) or seal(s) using sufficient lighting and magnification to allow fine detail to be distinguished. The digital microscope or VSC (for performance and verification frequency, refer to the VSC Performance and Maintenance logbook nearest the instruments) may be useful. Compare and evaluate identifying characteristics accordingly. Redacted

5.5 Evaluate the similarities, differences, and limitations. Determine their significance individually and in combination.

5.6 Make notations in the examination records. Include, at a minimum, any impressions made during the examination process, as well as any printouts, photographs, or drawings of any class, identifying, and/or eliminating characteristics observed during the examination process that were used to support your conclusions.

5.7 Conclusions

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5.7.1 Conclusions when comparing a questioned impression(s) to a stamping device/dry seal:

- **Identification** – The determination that the questioned impression(s) was prepared by a particular stamping device/dry seal due to agreement in identifying characteristics. No differences that would preclude an identification were observed.

  May Have Prepared – A less than definitive determination that a particular stamping device/dry seal, or its duplicate, was used to prepare the questioned impression(s). There is a correspondence in characteristics between the device/seal and the questioned impression(s); however, there is limited agreement in identifying characteristics and limitations are present. This opinion requires explanation of the limiting factors.

- **No Conclusion/No Determination** – No determination can be reached whether the stamping device/dry seal was or was not used to prepare the questioned impression(s). There may be correspondence in class characteristics between the device and impression(s), however, there are factors that significantly limit meaningful examinations. These factors can include the absence or limited quantity of identifying characteristics in the questioned and known impressions, non-original items, lack of sufficient quantity of items, prior destructive forensic examinations, or the lack of detail and clarity in the impressions. This opinion requires explanation of limiting factors.

- **May Not Have Prepared** – A less than definitive determination that a particular stamping device/dry seal was not used to prepare the questioned impression(s). There is a lack of correspondence in characteristics between the device/seal and questioned impressions(s). Some inconsistencies are noted but limitations are present. This opinion requires explanation of the limiting factors.

- **Elimination** – A determination that the questioned impression(s) was not prepared by a particular stamping device/dry seal due to sufficient disagreement in class and/or identifying characteristics. Significant differences are observed.

5.7.2 Conclusions when comparing an impression(s) to an impression(s):

- **Items Share a Common Source** - A determination that the impressions originated from a common source due to agreement in identifying

characteristics. The common source may include the same stamping device/dry seal, duplicate stamps, or any of the components used to create the device/seal (e.g., artwork). No differences that would preclude a definitive conclusion were observed.

- **May Share a Common Source** - A less than definitive determination that two or more impressions originated from a common source. The common source may include the same stamping device/dry seal, duplicate stamps, or any of the components used to create the device/seal (e.g. artwork). The comparison of the impressions reveals no significant, reproducible, or inexplicable differences. There is significant agreement in all observable aspects of the results; however, limitations are present. This opinion requires explanation of limiting factors.

- **No Conclusion/No Determination** - No determination can be reached whether the items originated/did not originate from a common source. There may be correspondence in class characteristics between the impressions, however, there are factors that significantly limit meaningful examinations. These factors can include the absence or limited quantity of identifying characteristics within the impressions, non-original items, lack of sufficient quantity of items, prior destructive forensic examinations, or the lack of detail and clarity in the impressions. This opinion requires explanation of limiting factors.

- **May Not Share a Common Source** - A less than definitive determination that two or more impressions did not originate from a common source. Common source may include the same stamping device/dry seal, or any of the components used to create the device/seal (e.g. artwork). The comparison of the impressions reveals reproducible and inexplicable variations. Inconsistencies are observed; however, limitations are present. This opinion requires explanation of the limiting factors.

- **Do Not Share a Common Source** - A determination that the impressions did not originate from a common source (to include the stamping device/dry seal, or any of the components used to create the device/seal) due to sufficient disagreement in class and/or identifying characteristics. Significant differences are observed.

6 Calculations

Not Applicable.

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7 Measurement Uncertainty

Not Applicable.

8 Limitations

The following factors could affect the examination process and/or the results rendered:
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- Insufficient quantity of original material submitted for examination.
- Prior destructive forensic examinations such as latent print processing.
- Lack/limited number of sufficient suitable identifying characteristics.

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9 Safety

Standard precautions should be followed for the handling of chemical and biological materials. Examiners/analysts may refer to the *FBI Laboratory Safety Manual* for additional guidance. Chemical and biological materials that are hazardous or potentially hazardous will be maintained and examined in specifically designated areas within the QDU space.

10 References

FBI Laboratory Safety Manual

ASTM E 2286, "Standard Guide for Examination of Dry Seal Impressions," *Annual Book of ASTM Standards,* Vol 14.02.

ASTM E 2289, "Standard Guide for Examination of Rubber Stamp Impressions," *Annual Book of ASTM Standards,* Vol 14.02.

Cadigan, James, "Examination of Rubber Stamp Impressions," Federal Bureau of Investigation.

Casey, Maureen A., "The Individuality of Rubber Stamps," *Forensic Science International*, 12, 1978.

Ellen, David, *Scientific Examination of Questioned Documents: Methods and Techniques Third Edition*, CRC Press, Boca Raton, FL, 2006.

Herbertson, Gary, *Rubber Stamp Examinations: A Guide for Forensic Document Examiners*, Wide Line Publishing, Colorado Springs, CO, 1997.

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Hilton, Ordway, *Scientific Examination of Questioned Documents Revised Edition*, Elsevier Science Publishing Co., New York, NY, 1982.

Seaman Kelly, J., and Lindblom, B., *Scientific Examination of Questioned Documents Second Edition*, CRC Press, Boca Raton, FL, 2006.

Seaman Kelly, J., *Forensic Examination of Rubber Stamps: A Practical Guide*, Charles C. Thomas Publisher, Ltd., Springfield, IL, 2002.

Vastrick, T.W., "The Examination of Notary Seals," *Journal of Forensic Sciences*, JFSCA, Vol. 7, No. 4, Oct. 1982, p. 899-911.

"Rubber Stamps and Rubber Stamp Impressions as Evidence," Federal Bureau of Investigation.

Rev. #	Issue Date	History
4	03/01/18	Minor typographical corrections made throughout document, as necessary. 2 Equipment/Materials/Reagents, seventh bullet, changed 100 to the "200" HSI. 5.3.3.1, added, "for performance and verification frequency, refer to the Keyence Performance logbook nearest the instrument)" 5.4 added "(for performance and verification frequency, refer to the VSC Performance and Maintenance logbook nearest the instruments)"
5	01/15/20	Removed "or its duplicate" from "Identification" "May Not Have Prepared" and "Elimination" sections of 5.7.1 and "May Not Share a Common Source" and "Do Not Share a Common Source" sections of 5.7.2. Added the word "stamps" to "Items Share a Common Source" and "May Share a Common Source" in Section 5.7.2, and added last bullet in Section 8 "Limitations".

Approval

Redacted - Signatures on File

Date: 01/14/2020

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